

# OBSERVATIONS ON THE FEEDING HABITS OF THE RED-TAILED PHASCOGALE *PHASCOGALE CALURA* IN THE WESTERN AUSTRALIAN WHEATBELT

By A. BAXTER

Department of Environment and Conservation,  
P.O. Box 100, Narrogin WA 6312  
(Avril.Baxter@dec.wa.gov.au)

and A. CHAPMAN

PO BOX 264, Ravensthorpe WA 6346  
(fishymaster1@bigpond.com)

Most Australian mammals are nocturnal and in order to gain an understanding of their biology it is sometimes necessary to make assumptions based on data obtained by indirect means. This is particularly true for small carnivorous marsupials where most of our knowledge of their diet is based on analyses of faecal pellets left in traps or nests. While this provides some indication of part of their diet it is biased towards those dietary items that have a hard exoskeleton (invertebrates) or indigestible parts of vertebrates such as teeth and claws. What has been difficult to discern is whether soft food items such as nectar are consumed. Similar examples occur in reptiles where Dell (1985) reported on observations of geckos feeding on plant sap. Keeping some species in captivity has allowed observations to be made of what foods some animals will accept, but it is difficult to determine between a natural food item and what might have become an acquired taste.

With the development of modern technology in digital photography it is possible to see what many animals do at night without adversely influencing their behaviour. The use of infrared flash photography coupled with motion detector triggering mechanisms offers a whole new view on life after dark.

This paper reports on observations of feeding behaviour not previously recorded for the Red-tailed Phascogale.

From the 12–18 April 2010 a fauna survey was conducted on a 200 hectare remnant of native vegetation located 19 km south-south-east of Kulin in the central wheatbelt. The bushland is privately owned and is registered with the Department of Environment and Conservation (DEC) *Land for Wildlife* Program.

The bushland is on a minor catchment divide and the general habitat consists of laterite ridges, granite outcrops and slopes draining into broad valleys.

Vegetation consists of granite complexes, sheoak (*Allocasuarina*) shrublands, mallee, Gimlet *Eucalyptus salubris* and Salmon Gum *E. salmonophloia* woodlands giving a very high degree of habitat diversity. The bushland has never been cleared, was fenced when the adjoining paddocks were developed for agriculture in the 1960's, timber has never been removed, it has seldom been burnt and is in very good condition.

The survey used a range of methods to sample the native fauna including three pit/bucket trap lines with drift fences each of 12 traps, six Elliott trap lines of 20 medium traps each baited with 'universal' bait (DEC, 2009) operated under DEC licence (SF007055), and three fixed digital cameras (Moultrie 160 Infra-red Digital Game Camera) provided by DEC through their *Land for Wildlife* Program. Other methods used included litter raking, active searching and head torching at night, and identifying birds through sight and call at each trapping site.

A total of 40 species of birds, three native and two introduced mammals, three frogs and four reptiles were recorded during the survey (Chapman 2010).

The only small native mammal trapped was the Red-tailed Phascogale which was caught in five of the six Elliott trap lines. Sixteen individuals were captured with one recapture. Six were caught in a trapline located in a woodland of Tamma Sheoak *Allocasuarina campestris* and Silver

Wattle *Acacia lasiocalyx* beneath a granite outcrop, and five in a trapline located in a Gimlet *Eucalyptus salubris* woodland with an understorey of Boree *Melaleuca pauperiflora* and *M. acuminata*.

A fixed video camera that was placed near a trapline located in a thicket of Round-fruit *Banksia Banksia sphaerocarpa* and *B. cirsioides* provided extensive visual data on the behaviour of Red-tailed Phascogale.

The camera was focused on a Round-fruit *Banksia* shrub and the five second video clips showed a Red-tailed Phascogale repeatedly visiting the shrub over the course of three nights. Visits occurred every one to two hours during the night and provide an interesting snapshot into the feeding habits. On the first night a Red-tailed Phascogale visited the shrub once at 12.35 am when the recorded temperature was 14°C. On the second night a Red-tailed Phascogale first triggered the camera at 7.09 pm (18°C) and finally at 4.07 am (9°C). On the third night visits started at 6:39 pm (18°C) and finished at 5.49 am (11°C).

In five of the 25 instances in which the camera was triggered, the Red-tailed Phascogale was foraging on the ground beneath the shrub, in another seven it was feeding on the only fresh flower on the shrub, leaving the faded flowers alone. On one occasion the Red-tailed Phascogale appeared to follow a moth up to the fresh flower.

The Red-tailed Phascogale has previously been recorded as

feeding on a wide range of insects, small birds, small mammals and is known to feed extensively on the ground (Kitchener 1981). However, it has not been recorded visiting flower blossoms or taking nectar or pollen. What were the individuals observed in this study actually doing? Were they visiting the fresh flower while hunting for insects within the flower or were they actually feeding on nectar or pollen?

A literature search showed that there are no reports of the Red-tailed Phascogale feeding on pollen or nectar. However, there are reports for other Dasyuridae species such as the Brush-tailed Phascogale *Phascogale tapoatafa* (Scarff *et al.* 1988) and the Dibbler *Parantechinus apicalis* (Morcombe 1967) feeding on nectar. In their database of animals visiting flowers, Brown *et al.* (1997) listed nine native mammal species visiting blossoms but gave no data on the food items being consumed. Scarff *et al.* (1988) in their work on the Brush-tailed Phascogale in the Jarrah forest of south-western Australia recorded them feeding on Bull Banksia *B. grandis* flowers and suggested that "*Phascogales in semi-arid areas could also have utilized nectar sources to a much greater degree than those observed at Perup and Kingston*".

Observations reported in this paper indicate that Red-tailed Phascogales visit blossoms presumably to feed on nectar and pollen. Can we add this species to the list of potential mammalian pollinators?

## REFERENCES

- BROWN, E.M., BURBIDGE, A.H., DELL, J., EDINGER, D., HOPPER, S.D. and WILLS, R.T. 1997. *Pollination in Western Australia: a Database of Animals Visiting Flowers*. Handbook No. 15. Western Australian Naturalists' Club, Perth. 464pp.
- CHAPMAN A. 2010. A Preliminary Vertebrate Biological Survey of Remnant Vegetation on Williams Location 15126. Unpublished report for K. Giles.
- DEC 2009. Elliott traps for live capture of terrestrial vertebrates. Department of Environment and Conservation Standard Operating Procedure No. 9.1.
- DELL, J. 1985. Arboreal Geckos Feeding on Plant Sap. *Western Australian Naturalist* 16: 69–70.
- KITCHENER, D.J. 1981. Breeding, diet and habitat preference of *Phascogale calura* (Gould, 1844) (Marsupialia: Dasyuridea) in the southern wheat belt, Western Australia. *Records of the Western Australian Museum* 9: 173–196.
- SCARFF, F.R., RHIND, S.G. and BRADLEY, J.S. 1988. Diet and foraging behaviour of Brush-tailed Phascogales (*Phascogale tapoatafa*) in the jarrah forest of south-western Australia. *Wildlife Research* 25: 511–526.
- MORCOMBE, M.K. 1967. The rediscovery after 83 years of the Dibbler *Antechinus apicalis* (Marsupialia, Dasyuridea). *Western Australian Naturalist* 10: 103–111.